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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,459	03/26/2001	Moshe Gefen	246/67	6427

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EXAMINER

CHOI, WOO H

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,459

Applicant(s)

GEFEN ET AL.

Examiner

Woo H. Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 20 – 22 are objected to for improperly depending from a cancelled claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 10 – 15, 17, and 20 – 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bott (Using Windows 95, Ed Bott, Que, 1995).

4. With respect to claims 10, 11, and 15, Bott discloses a device for enabling an executing entity of a host system to execute code, comprising:

(i) a non-executable memory component, for storing the code (page 73, hard drive); and

(ii) at least one executable memory component (page 72, RAM, see also page 975,

memory is organized as pages and segments of 64K), each said executable memory component for presenting at least a portion of said stored code to the executing entity in a manner that

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enables the executing entity to execute said portion of said stored code directly from said each executable memory (programs are directly executed in RAM).

The non-executable memory component and said at least one executable memory components are separate from the host system (page 72, CPU, hard disk and RAM are separate from the CPU).

5. With respect to claim 12, device further comprises:

(iii) a mechanism for guaranteeing availability, in one of said at least one executable memory component, of code requested by the executing entity (page 975, memory paging).

6. With respect to claim 13, 20 – 21, the device comprises a plurality of said executable memory components, such that while one said executable memory component is presenting a first said at least portion of said stored code to the executing entity, a second said at least portion of said stored code is being downloaded to another said executable memory component (page 974, process scheduling and multitasking).

7. With respect to claim 14 and 17, each said at least one executable memory component is too small to accommodate all of the code at once (pages 69 – 70, System Requirements for Windows 95, Windows 95 requires more disk space for all of its code than RAM, see also memory paging on pages 975 – 976, one segment is 64K bytes).

8. Claims 10 – 12, 14 – 15 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang (US Patent No. 6,263,399).

9. With respect to claims 10, 11, and 15, Hwang discloses a device for enabling an executing entity of a host system to execute code (figure 2), comprising:

- (i) a non-executable memory component (26), for storing the code (col. 1 lines 15 – 23);
- and
- (ii) at least one executable memory component (col. 6, lines 23 – 28), each said executable memory component for presenting at least a portion of said stored code to the executing entity in a manner that enables the executing entity to execute said portion of said stored code directly from said each executable memory (RAM is a executable memory and the data or code from the NAND flash memory is presented to the CPU in the CPUs native form just like any other directly executable memories, see col. 5, lines 20 – 24).

The non-executable memory component and said at least one executable memory components are separate from the host system (figure 2, CPU 10, Memory Interface 22 and NAND Flash Memory are all separate entities).

10. With respect to claim 12, the device further comprises:

- (iii) a mechanism for guaranteeing availability, in one of said at least one executable memory component, of code requested by the executing entity (the RAM is part of the memory interface 22, that passes all data requested by the CPU from the NAND flash memory 26).

11. With respect to claim 14, each said at least one executable memory component is too small to accommodate all of the code at once (col. 6, lines 24 – 27).

12. With respect to claim 17, only a first portion of the code is downloaded to said first executable memory component (col. 6, lines 24 – 27).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 13, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa in view of Nojima (US Patent No. 6,246,634).

14. With respect to claim 13, Arakawa discloses a device for enabling an executing entity of a host system to execute code, comprising:

(i) a non-executable memory component (figure 9, flash memory array a, and col. 5, line 3), *for* storing the code (the memory is inherently capable of storing the code); and

(ii) at least one executable memory component (figure 9, SRAM cell array a), each said executable memory component *for* presenting at least a portion of said stored code to the executing entity in a manner that *enables* the executing entity to execute said portion of said

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stored code directly from said each executable memory (It is noted that unlike claim 15, direct execution of code is not claimed here. What is being claimed is the capability *for* such use, which is inherent in Arakawa's disclosure. SRAM, which is an executable memory component by Applicant's definition, is inherently capable of presenting the code for direct execution).

Arakawa also discloses a second executable memory component.

However, Arakawa does not specifically disclose that the device comprises a plurality of said executable memory components, such that while one said executable memory component is presenting a first said at least portion of said stored code to the executing entity, a second said at least portion of said stored code is being downloaded to another said executable memory component. On the other hand, Nojima discloses such memory components (col. 4, lines 42 – 45)

It would have been obvious to one of ordinary skill in the art, having the teachings of Arakawa and Nojima before him at the time the invention was made, to use the teachings of the memory system with SRAM and flash memory of Nojima in the design of the memory system SRAM and flash memory of Awakawa, in order to reduce the number of SRAM memory cells and yet at the same time provide higher periods of accessibility for the entire memory circuit (Nojima, col. 1, lines 44 – 46).

15. With respect to claims 18 and 19, both Arakawa (figure 9, BUSY/READY) and Nojima (figure 1, RDY/BY) use Busy/Ready control signals.

16. Claims 20 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa *et al.* (US Patent No. 5,590,073, hereinafter “Arakawa”) in view of Hwang.

Arakawa discloses a method comprising the steps of (a) storing the code in a non-executable memory component;

(b) downloading at least a portion of data (col. 13, lines 30 – 37) from said non-executable memory component (figure 9, flash memory array a, and col. 5, line 3) to a first executable memory component (figure 9, SRAM cell array a); and

(d) downloading a second portion of the data to a second executable memory component (SRAM cell array b) ; and

both sets of SRAMs are capable direct execution (steps c and e).

However, Arakawa does not specifically disclose that the data comprises executable code. On the other hand, Hwang discloses that non-volatile memories may include instructions (Hwang, col. 1, 15 – 24).

It would have been obvious to one of ordinary skill in the art, having the teachings of Arakawa and Hwang before him at the time the invention was made, to use the memory interface teachings of the computer system with non-volatile memory of Hwang in the design of the computer system with non-volatile memory of Awakawa, in order to provide a CPU-memory

combination which allows expansion of memory without having to redesign the surrounding circuitry (Hwang, col. 2, lines 7 – 10).

Response to Arguments

17. Applicant's arguments with respect to claims 10 – 15, and 17 – 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

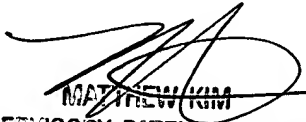
18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Choi *et al.* (US Patent No. 5,737,258) disclose non-volatile memory with non-executable and executable memory combination.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (703) 305-3845. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

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whc
July 28, 2003


MATTHEW KIM
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